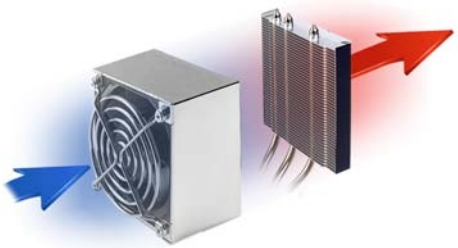
Entry-level, affordable cube PC

This Mini PC with a stylish aluminium chassis supports the 4th generation of Intel Core desktop processors. The integrated graphics provides two digital video outputs for dual monitoring and can be enhanced by a high-performance graphics card for more demanding applications. The barebone is equipped with two PCI-Express and two Mini-PCI-Express slots for multi-purpose expansion cards. Multi-display graphics, multi-LAN, TV tuner, RAID, mSATA SSDs or WLAN can be realised. The SH81R4 comes with a built-in 80 PLUS Bronze certified power supply and Shuttle's exclusive I.C.E. heatpipe cooling which means it is highly energy-efficient and ready for long-term operation. For a personal look and feel, the front panel can be customised by adding individual designs to it.

XPC Barebone

SH81R4



Shuttle I.C.E. Heatpipe cooling

Images for illustration purposes only

Feature Highlights

R4 Chassis	• Black aluminium chassis (13.3 litre) • Bays: 1x 5.25“ external, 2x 3.5“ internal
CPU	• Supports LGA 1150 processors (22nm Haswell) • Supports Intel Core i7/i5/i3, Pentium, Celeron • Shuttle I.C.E. Heatpipe cooling system
PCI-Express Slots	• PCIe X16 (v3.0) slot supports dual-slot PCI-Express X16 graphics cards with 6-pin power connector • PCIe X1 (v2.0) slot supports PCIe X4 cards • Full-Size Mini-PCIe slot supports mSATA • Half-Size Mini-PCIe slot supports WLAN
Chipset	• Intel H81 PCH chipset
Graphics	• Intel HD graphics integrated in the processor • Digital Video/Audio outputs: HDMI and DVI-I • Supports DirectX 11.1, 1080p/60, 2160p/30
Memory	• Two DIMM sockets support Dual Channel • Supports up to 16 GB DDR3-1600 memory
Drive Connectors	• 2x Serial ATA 6Gb/s • 1x Serial ATA 3Gb/s
Other Connectors	• 5.1 ch. HD-audio, microphone, head phone • GigaBit LAN (RJ45) • 2x USB 3.0 (rear) • 8x USB 2.0 (2x front, 6x rear)
Optional Accessories	• RS232 Serial COM-Port (H-RS232) • Wireless LAN with two antennas (WLN-C)
Power Supply	• 300 Watt mini power supply, 80 PLUS Bronze
Application	• Entry-level Home/Office

8 11686 00672 5

UPC bar code: 811585006725

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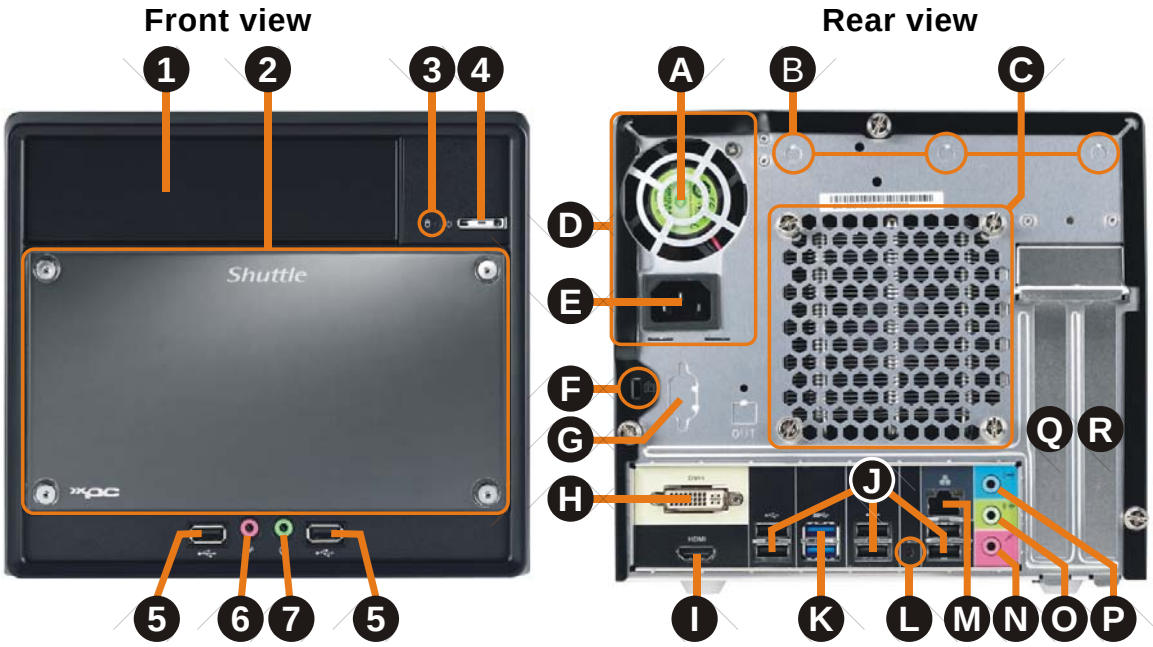
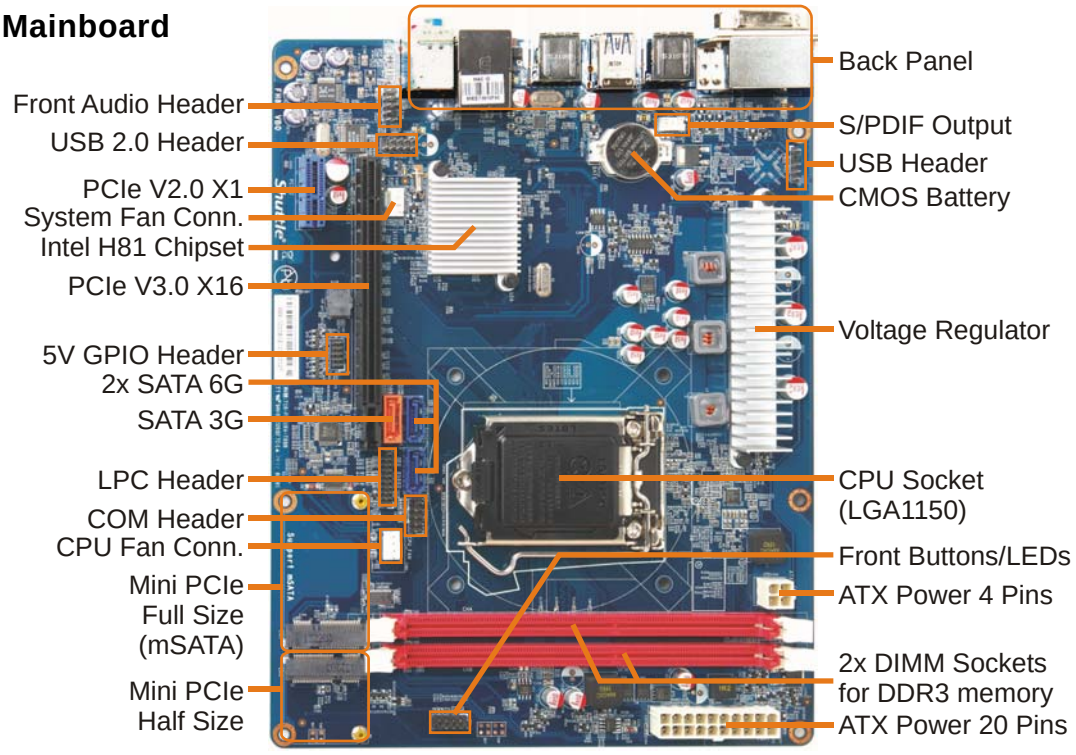
Shuttle XPC Barebone SH81R4 – Connectors



1	5.25“ optical drive bay	**A**	Power supply fan	**J**	6x USB 2.0
2	Removable acryllic plate	**B**	Optional WLAN antennas	**K**	2x USB 3.0
3	Hard disk LED indicator	**C**	Heatpipe cooling system	**L**	Clear-CMOS-Button
4	Power switch with LED	**D**	Power supply	**M**	Gigabit LAN (RJ45)
5	2x USB 2.0 ports	**E**	AC power connector	**N**	Microphone input
6	Microphone input	**F**	Hole for Kensington Lock	**O**	Audio Line-out
7	Headphone output	**G**	Optional COM port	**P**	Audio Line-in
		H	DVI-I video output	**Q**	PCI-Express X16 slot
		I	HDMI video output	**R**	PCI-Express X1 slot

Mainboard



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Shuttle XPC Barebone SH81R4 – Product Features

The R4 chassis design: a clean and modern look

Shuttle has always placed great emphasis on the interior and exterior aesthetics of the XPC with the belief that a good blend of style and form factor allows the XPC to be attractive, versatile and work well in almost any environment. The construction and cover of the R4 chassis is made of aluminium. This leads to a stylish, but robust appearance which has made the R4 a popular chassis design. The drives and media connectors on the front are easy to access in daily use.

Customisable

The front of this XPC Barebone can easily be customised by simply changing the mylar behind the acylic front plate. Add your individual design such as a photo, graphics or a company logo to the front panel in just a few steps.

Small, but easy to build

Shuttle XPCs offer the performance of a desktop PC at a third of the size while using standard desktop components. Be ready for the future when banking on Shuttle's R4 chassis. The meticulously designed internal layout features pre-routed cables to reduce clutter, increase airflow and make the installation of components easy.

What does “Barebone” mean?

The Shuttle XPC Barebone SH81R4 consists of a stylish case with pre-installed mainboard, power supply unit (PSU) and cables. Despite its small form factor, it offers outstanding connectivity, functionality and performance. For a full PC system, components such as a processor, memory, hard disk and operating system need to be added that can be chosen individually to ideally match personal needs. Some XPC models require a graphics card to be added.

Integrated Cooling Engine (I.C.E.)

In order to ensure proper airflow inside such a small case, more advanced cooling technologies have been developed and implemented in the Shuttle XPC. Shuttle's industry-leading I.C.E. heatpipe technology delivers efficient cooling and is exceptionally quiet.

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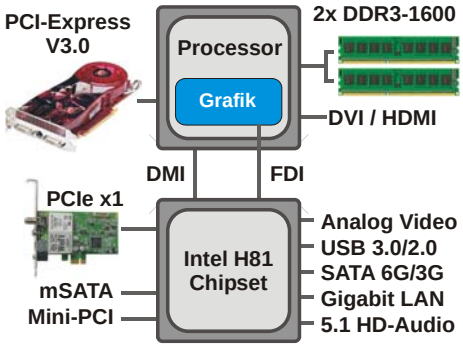
Supports Intel 22nm Haswell Processors

Haswell is the codename for Intel's 4th Generation of Core Processors introduced in June 2013 along with the 8-series chipsets. The Shuttle XPC Barebone SH81R4 supports Intel desktop processors for socket LGA1150. One monolithic die incorporates up to four CPU cores, the shared L3 cache, the memory controller, PCIe links, the graphics processor and now also the integrated voltage regulator (IVR). The 4th generation of Intel Core processors brings the highest performance currently available in mainstream computing with the additional benefit of superior graphics support. It provides a better branch prediction, a doubling of the bandwidth of both the L1 and the L2 caches and bears a new generation of integrated HD graphics circuitry with a new level of performance for 3D games and HD media playback alike.



Single-Chip Chipset: Intel H81

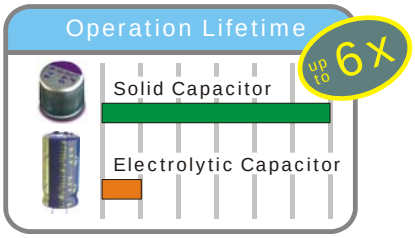
The design of the current Core i3/i5/i7 processors does away with the traditional Northbridge as found on previous generation mainboards. The Shuttle XPC Barebone SH81R4 sports Intel's H81 Platform Controller Hub (PCH) from the Intel 6-Series "Lynx Point" family which integrates the hard drive controller, network controllers, monitor and physical interfaces, PCIe links and other input/output functionalities.

2x USB 3.0

The Shuttle XPC Barebone SH81R4 sports two USB 3.0 ports on the back panel besides eight USB 2.0 ports on both front and rear. USB 3.0 achieves a maximum data rate of up to 5.0Gbps (640MBytes/sec) which is ten times faster than USB 2.0. USB 3.0 is fully compatible to USB 2.0. At first view USB 3.0 connectors seem no different to USB 2.0 connectors, however USB 3.0 connectors have 5 more pins placed inside the connector itself. USB 2.0 can provide a maximum output of 500mA to the USB device while USB 3.0 can provide a maximum output of 900mA which is particularly important for portable hard drives.

Internal Drives

Up to one optical drive and two hard disks can be fitted in the Shuttle XPC Barebone SH81R4. To reduce heat and improve on airflow, the drive rack built into the SH81R4 leaves generous space between the hard disks. Intelligently-engineered airflow mechanics channels cool air to where it is needed most - protecting components and providing optimal performance.



Solid Capacitors

By using all-solid capacitors (audio excepted) Shuttle mainboards are long-life and provide industry-leading stability and reliability. The average lifespan of one solid capacitor is more than six times longer compared to the previous generation of electrolytic capacitors.

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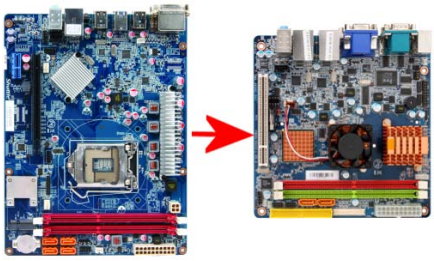
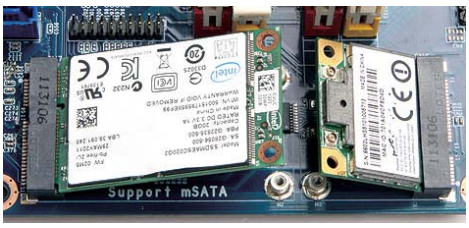


Mini-ITX Mainboard Support

Shuttle expands the capabilities of its R chassis adding support for Mini-ITX mainboards (17 x 17cm or 6.7 x 6.7 inches) which means the mainboard can easily be up- or downgraded without any modifications to the chassis.



2x expansion slots for Mini-PCI-Express cards

The Shuttle XPC Barebone SH81R4 features two expansion slots for Mini-PCIe cards. The first one is a half-size slot dedicated for Wireless LAN adapter cards (see optional accessory WLN-C). The second one has full-size format and not only features a PCIe interface, but also mSATA (Mini Serial ATA) supporting the new generation of Solid State Drives (SSD) in a compact Mini PCIe card form factor.
Images: full-size mSATA SSD card (left) and half-size WLAN card (right).

80 PLUS BRONZE certified 300W Power Supply

The Shuttle XPC Barebone SH81R4 is equipped with a rock-stable built-in 300W power supply which works excellent with the latest graphics cards and Core i3/i5/i7 processors. Its 80 PLUS Bronze logo indicates that it provides more than 82/85/82% of energy efficiency at 20/50/100% of rated load. This means a reduction of energy consumption while it increases the computer's reliability. In addition, the power supply uses a 50mm cooling fan delivering the same airflow, but spins at a slower speed than previous 40mm models to make the system run even more quietly.

Energy-saving

The power consumption mainly depends on the processor used and its load. If an Intel Core i5-4570S (3,1-3,8 GHz, TDP = 65W) processor is installed, the system consumes about 18.3W in idle mode. Under full load, the power consumption is 73.5W.

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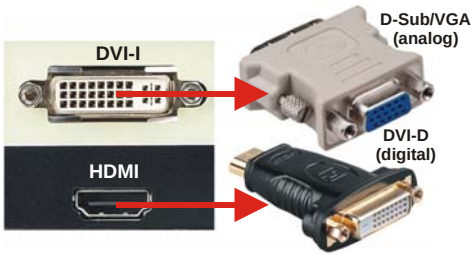
Graphics Features

Built-in Intel® HD Graphics Engine

The integrated Intel® HD Graphics depends on the type of processor used and supports hardware decoding for H.264 and MPEG-2 video, Intel® Quick-Sync video encoding, 1080p high-definition resolution, HDCP, Blu-ray*) playback, DirectX 11.1 and Shader Model 5.0. The graphics performance is comparable to entry-level discrete graphics cards.
*) appropriate software and optical drive required

Supports 4K Ultra-HD video playback

4K resolution is the next technological milestone in high-definition content delivery, utilizing more than four times of 1080p Full HD pixel density. The Shuttle XPC Barebone SH81R4 supports 4K Ultra-HD video content at 2160p/30Hz via its HDMI video output in conjunction with Intel Core™ i3/i5/i7 processors.



Video outputs

With optional adapters (not included) VGA devices can be connected to the DVI-I port or DVI-D devices to the HDMI port, respectively.

D-Sub (VGA) means only analog video signals are put out.
DVI-D means only digital video signals are put out.
DVI-I means both digital and analog video signals are put out.
HDMI supports digital video plus multi-channel digital audio output, however if an adapter is used, no audio signals are put out.

Dual View Technology with two digital video ports

Dual View technology offers multiple display support for up to two separate monitors. This helps improve on productivity by allowing to spread multiple windows across two monitors while working with them simultaneously. The Shuttle XPC Barebone SH81R4 features two digital video outputs: DVI and HDMI.

Support of up to four displays

The Shuttle XPC Barebone SH81R4 can be connected to up to four displays, if a dedicated discrete PCI-Express graphics card is used. This function is based on the “Switchable Graphics” feature.

PCI-Express V3.0 for high-performance graphics cards

Thanks to the optimised internal layout,the XPC Barebone SH81R4 even takes large dual-slot graphics cards. The modern PCI Express V3.0 interface makes sure there is no bottleneck when gaming or working with 3D applications. This barebone PC also features an additional 6pin ATX auxiliary power connector for top-of-the-range graphics cards.

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Optional Accessories

WLAN-Kit (WLN-C)

Wireless LAN adapter with two external antennas supports IEEE 802.11b/g/n at max. 300 Mbit/s.

Serial RS-232 port (H-RS232)

One serial COM port (RS232) can optionally be installed to the back panel. This is particularly relevant for professional applications such as electronic POS, industrial automation systems and scientific analysis.

500W Power Supply with 80 PLUS Silver Logo (PC63J)

The PC63J is a high-end power supply with a maximum output wattage of 500W. It features additional 6-pin and 8-pin ATX auxiliary power connectors for high-end graphics cards. Thanks to its 80 PLUS Silver certification for power-efficient devices, this power supply is also suitable for ENERGY STAR® compliant systems.

Adapter for 2.5“ drives (PHD3)

The PHD3 allows for installation of 63.5mm (2.5") hard drives or SSDs into a larger 89 mm (3.5") drive bay.

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Shuttle XPC Barebone SH81R4 - Specifications

R4-Chassis	Black aluminium chassis with acrylic front plate Customisable front panel design: simply change the mylar and add a personal design such as a photo, graphics or a logo to the front panel. Storage bays: 1 x 5.25" (external), 2 x 3.5" (internal) Dimensions: 32.5 x 21.5 x 19 cm (LWH) = 13.3 liters (without rubber feet) Weight: 3.4 kg net / 4.5 kg gross
Mainboard and Chipset	Shuttle mainboard FH81, Shuttle form factor, proprietary design for XPC SH81R4 Chipset/Southbridge: Intel® H81 (code name: Lynx Point) Platform Controller Hub (PCH) Intel® DH82H81 Passive chipset cooling with heat sink The Northbridge is integrated into the processor. Solid Capacitors for sensitive areas provide excellent heat resistance for enhanced system durability
BIOS	AMI BIOS, SPI Interface, 32MBit Flash-ROM Supports PnP, ACPI 3.0, Hardware Monitoring Supports boot up from external USB flash memory Supports Unified Extensible Firmware Interface (UEFI) [2]
Power Supply	Builtin 300 Watt mini switching power supply (model PC61J) AC input voltage: 100~240V, 50~60 Hz 80 PLUS Bronze compliant: The PSU provides at least 82/85/82% of efficiency at 20/50/100% of load. Active PFC circuit (Power Factor Correction) ATX main power connectors: 2x10 and 2x2-pin Graphics power connector: 6-pin Other connectors: 4x SATA, 2x Molex, 1x Floppy
Processor Support	Socket LGA 1150 (H3) supports the fourth generation of Intel Core i7 / i5 / i3, Pentium and Celeron processors Maximum supported processor power consumption (TDP) = 95W Codename "Haswell", 22nm process technology, up to 8 MB of L3 cache Does not support the unlock-function of Intel K-Series processors. The processor integrates PCI-Express, memory controller and the graphics engine on the same die (depends on processor type) Please refer to the support list for detailed processor support information.
Heatpipe Processor Cooling	Shuttle I.C.E. (Integrated Cooling Engine) advanced I.C.E. heatpipe technology, linear-controlled 92mm fan SilentX cooling and noise reduction technology with Active Airflow
Memory Support	2 x 240-pin slots Supports DDR3-1600 SDRAM memory (PC3-12800) Supports Dual Channel mode Supports max. 8 GB per DIMM and a maximum total capacity of 16 GB

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Integrated Graphics (optional)	1x PCI-Express x16 v3.0 slot (PEG, for graphics cards only) 1x PCI-Express x1 v2.0 slot, open-ended [3] Supports dual-slot (double-width) graphics cards (occupies the second PCI-Express slot) With 6-pin power connector for the graphics card.
PCEe Slots	This XPC features two Mini PCI Express expansion slots: 1) half-size, supports PCIe 2.0 and USB 2.0, e.g. for WLAN cards [4] 2) full-size, supports PCIe 2.0, SATA 3.0 (6 Gbps) and USB 2.0 e.g. for Mini SATA (mSATA) flash memory cards [5]
Mini PCIe Slots	The integrated Intel® HD Graphics depends on the type of processor used. It supports hardware decoding for H.264 and MPEG-2 video, Intel® Quick-Sync video encoding, HDCP, Blu-ray [6] playback, DirectX 11.1 and Shader Model 5.0. Maximum shared memory size: 1692MB This PC supports Dual Monitoring with two independent displays. Two digital video outputs (DVI-I and HDMI) support resolutions of up to 1920x1200 @ 60Hz (1080p/60 Full-HD). The HDMI output also supports one 4K display running at 3840 x 2160 (2160p/60Hz) high resolution. DVI-I supports analog VGA displays with an optional VGA-to-DVI-adapter. HDMI supports HD video plus multi-channel digital audio via a single cable.
6-Channel Audio	Audio Codec: Realtek ALC662, 5.1 channel Three analog audio connectors (3.5mm) at the back panel: Line-in (blue), line-out (green) and microphone input (pink) shared with 5.1 channel line-out (front, rear, center/bass) Front panel: microphone input and head phone output (line-out)
Gigabit-LAN Controller	Realtek RTL 8111E Ethernet network controller PCI Express interface IEEE 802.3u 1000Base-T compliant Supports 10 / 100 / 1.000 MBit/s operation Supports Wake-on-LAN (WOL) Supports booting from LAN (PXE)
Drive Connectors	2x Serial ATA 6G (rev. 3.0, max. 6 Gbit/s, colour: blue) 1x Serial ATA 3G (rev. 2.0, max. 3 Gbit/s, colour: orange)
Front Panel Connectors	Microphone input (3.5 mm) Headphone output (3.5 mm) 2x USB 2.0 Power button Power indicator (Blue LED) Hard disk drive indicator (Yellow LED)

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Back Panel Connectors	HDMI (supports 4K resolution 2160p/30Hz) DVI-I 2x USB 3.0 6x USB 2.0 GigaBit LAN (RJ45) Audio Line-out (3.5 mm) Audio Line-in (3.5 mm) Microphone Input (3.5 mm) Clear CMOS button Optional: Serial RS232 port (Accessory: "H-RS232") Perforations for optional WLAN antennas (Accessory: "WLN-C")
Other Connectors (onboard)	Front panel connectors: USB, audio, buttons, LEDs 1x RS232 serial interface (2x5 pins) 2x fan connectors (4 pins) Digital S/PDIF output (3 pins)
Included Accessories	Multilanguage XPC Installation Guide 32/64bit driver disk 2 SATA cables Power Cord Heatsink Compound
Optional Accessories	Back panel adapter for serial RS232 port **(H-RS232)** Wireless LAN 802.11n kit with two antennas **(WLN-C)** [4] Adapter for 2.5" drives such as SSDs **(PHD3)** 500W power supply, 80Plus Silver **(PC63J)**
Environmental criteria	Operating temperature: 0~35°C Humidity: 10~90%
Certifications Compliance	EMI: FCC, CE, BSMI, C-Tick Safety: ETL, CB, BSMI Other: RoHS, Energy Star 5.0, EuP Lot6 Conformity: This device is classed as a technical information equipment (ITE) in class B and is intended for use in living room and office. The CE-mark approves the conformity by the EU-guidelines: - EMV-guideline 89/336/EWG electromagnetic tolerance - LVD-guideline 73/23/EWG use of electric devices within certain voltage-limits

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[1] Overclocking Notice
Please note there is a certain risk involved with overclocking, including adjusting the BIOS settings or using third-party overclocking tools. Overclocking may affect your system stability or even cause damage of the components and devices of your system. It is done at your own risk and expense. Shuttle cannot be held responsible for possible damage caused by overclocking.
[2] Unified Extensible Firmware Interface (UEFI) - required when booting from hard disks larger than 2.2 TB under Windows 64-bit operating systems such as Windows 8/7, Windows Vista SP1 and Windows Server 2008/2003 SP1.
[3] Open-ended PCI-E slot - The X1 slot uses an open-ended socket to permit physically longer cards (e.g. X4 or X8) while the speed is limited to X1.
[4] Optional Wireless LAN module (WLN-C): This XPC Barebone supports the optional Shuttle XPC Accessory WLN-C which consists of a half-size Mini-PCIe card with IEEE 802.11n functionality and two external antennas with appropriate antenna cables.
[5] mini-SATA (mSATA)
Not to be confused with "micro SATA". mSATA is a newer industry standard which converts the electrical SATA interface to the pysical "Mini PCI Express" mini card form factor. Applications include mobile devices that require a smaller solid state drive and mainboards that use Intel's Smart Response Technology (SRT).
[6] For Blu-ray playback appropriate software and a Blu-ray drive is required (not included).

SH61R4 versus SH81R4

Comparison with the predecessor

Barebone Model	SH61R4	SH81R4
Back Panel		
Intel Processor Support	LGA1155, max. 95W 32nm Sandy Bridge, 22nm Ivy Bridge Intel Core i7, i5, i3, Pentium, Celeron	LGA1150, max. 95W 22nm Haswell (4th Gen. Core CPU) Intel Core i7, i5, i3, Pentium, Celeron
Chipset	Intel H61	Intel H81
Memory	Max. 2x 8 GB DDR3-1333	Max. 2x 8 GB DDR3-1600
PCI-Express Slots	(1) PCIe X16 v2.0 (1) PCIe X1 v2.0 (1) Mini-PCIe X1 half/full (Combo)	(1) PCIe X16 v3.0 (1) PCIe X1 v2.0 (1) Mini-PCIe X1 full size / mSATA (1) Mini-PCIe X1 half size
Graphics ports	DVI-I and DVI-D	DVI-I and HDMI HDMI supports 4K (2160p/30Hz)
5.1 Audio	IDT 92HD89C Codec	Realtek ALC662 Codec
SATA onboard *)	4x SATA 3G	2x SATA 6G 1x SATA 3G
Power Supply	250W Standard	300W 80 PLUS Bronze

*) Note: The H61 and H81 chipsets both support four SATA devices in total.
SH81R4 features three onboard SATA connectors for regular SATA drives and one mSATA slot.

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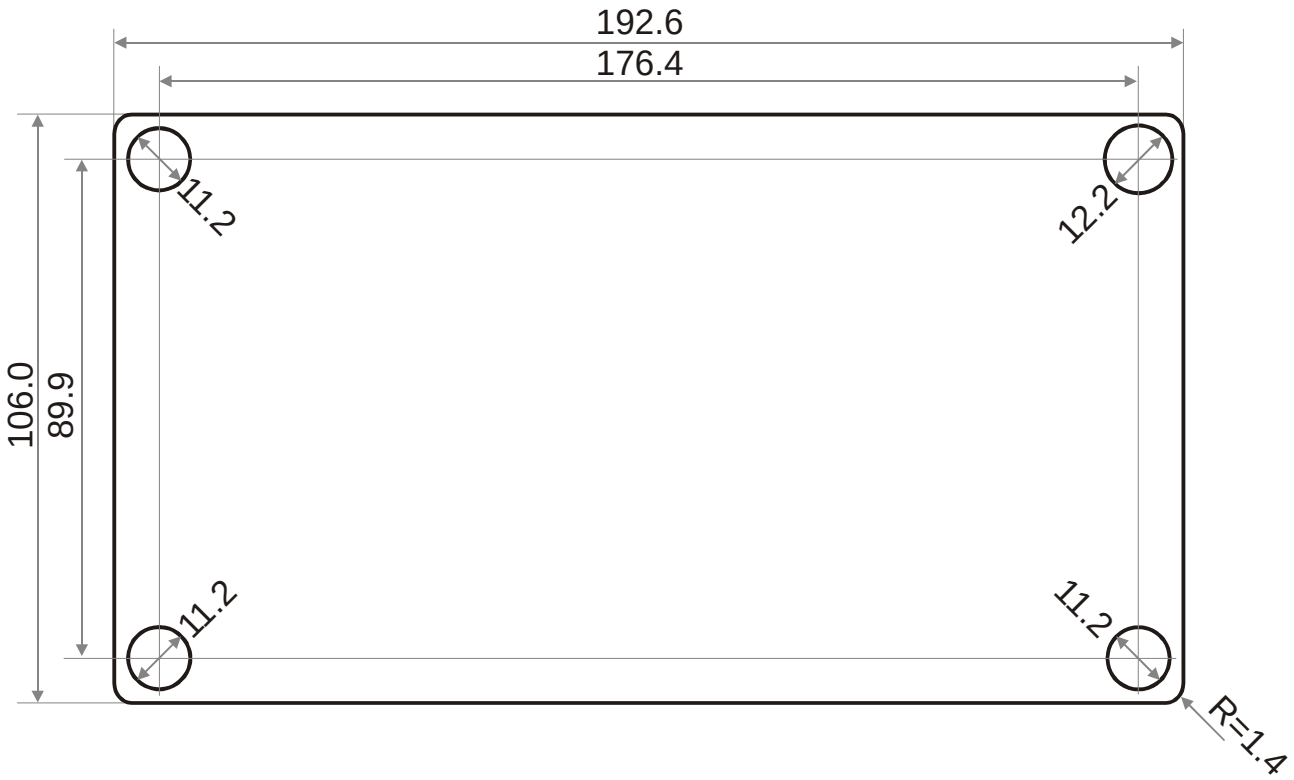
Shuttle XPC Barebone SH81R4 – Mylar Dimensions

The R4 front panel comes with a removable acrylic plate which allows for creating individual front designs. Simply change the mylar and add your individual design such as a photo, graphics or a company logo to the front panel in just a few steps.



All dimensions in millimeter (mm)

Example

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4th Generation Intel Core Processor Family

LGA1150 socket 22nm "Haswell" processor overview (Date: August 2014)

Name	Model	Cores	HT	Clock	Turbo	Cache	TDP	Graphics	GPU max.	DDR3
Core i7	4790	4	Yes	3.6 GHz	4.0 GHz	8 MB	84 W	HD 4600	1.20 GHz	1333/1600
	4790S	4	Yes	3.2 GHz	4.0 GHz	8 MB	65 W	HD 4600	1.20 GHz	1333/1600
	4790T	4	Yes	2.7 GHz	3.9 GHz	8 MB	45 W	HD 4600	1.20 GHz	1333/1600
	4785T	4	Yes	2.2 GHz	3.2 GHz	8 MB	35 W	HD 4600	1.20 GHz	1333/1600
	4771	4	Yes	3.5 GHz	3.9 GHz	8 MB	84 W	HD 4600	1.20 GHz	1333/1600
	4770K	4	Yes	3.5 GHz	3.9 GHz	8 MB	84 W	HD 4600	1.25 GHz	1333/1600
	4770	4	Yes	3.4 GHz	3.9 GHz	8 MB	84 W	HD 4600	1.20 GHz	1333/1600
	4770S	4	Yes	3.1 GHz	3.9 GHz	8 MB	65 W	HD 4600	1.20 GHz	1333/1600
	4770T	4	Yes	2.5 GHz	3.7 GHz	8 MB	45 W	HD 4600	1.20 GHz	1333/1600
	4770TE	4	Yes	2.3 GHz	3.3 GHz	8 MB	45 W	HD 4600	1.00 GHz	1333/1600
	4765T	4	Yes	2.0 GHz	3.0 GHz	8 MB	35 W	HD 4600	1.20 GHz	1333/1600
Core i5	4690T	4	-	2.5 GHz	3.5 GHz	6 MB	45 W	HD 4600	1.20 GHz	1333/1600
	4690S	4	-	3.2 GHz	3.9 GHz	6 MB	65 W	HD 4600	1.20 GHz	1333/1600
	4690	4	-	3.5 GHz	3.9 GHz	6 MB	84 W	HD 4600	1.20 GHz	1333/1600
	4670T	4	-	2.3 GHz	3.3 GHz	6 MB	45 W	HD 4600	1.20 GHz	1333/1600
	4670S	4	-	3.1 GHz	3.8 GHz	6 MB	65 W	HD 4600	1.20 GHz	1333/1600
	4670K	4	-	3.4 GHz	3.8 GHz	6 MB	84 W	HD 4600	1.20 GHz	1333/1600
	4670	4	-	3.4 GHz	3.8 GHz	6 MB	84 W	HD 4600	1.20 GHz	1333/1600
	4590T	4	-	2.0 GHz	3.0 GHz	6 MB	35 W	HD 4600	1.15 GHz	1333/1600
	4590S	4	-	3.0 GHz	3.7 GHz	6 MB	65 W	HD 4600	1.15 GHz	1333/1600
	4590	4	-	3.3 GHz	3.7 GHz	6 MB	84 W	HD 4600	1.15 GHz	1333/1600
	4570TE	2	Yes	2.7 GHz	3.3 GHz	4 MB	35 W	HD 4600	1.00 GHz	1333/1600
	4570T	2	Yes	2.9 GHz	3.6 GHz	4 MB	35 W	HD 4600	1.15 GHz	1333/1600
	4570S	4	-	2.9 GHz	3.6 GHz	6 MB	65 W	HD 4600	1.15 GHz	1333/1600
	4570	4	-	3.2 GHz	3.6 GHz	6 MB	84 W	HD 4600	1.15 GHz	1333/1600
	4460T	4	-	1.9 GHz	2.7 GHz	6 MB	35 W	HD 4600	1.10 GHz	1333/1600
	4460S	4	-	2.9 GHz	3.4 GHz	6 MB	65 W	HD 4600	1.10 GHz	1333/1600
	4460	4	-	3.2 GHz	3.4 GHz	6 MB	84 W	HD 4600	1.10 GHz	1333/1600
	4440S	4	-	2.8 GHz	3.3 GHz	6 MB	65 W	HD 4600	1.10 GHz	1333/1600
	4440	4	-	3.1 GHz	3.3 GHz	6 MB	84 W	HD 4600	1.10 GHz	1333/1600
	4430S	4	-	2.7 GHz	3.2 GHz	4 MB	65 W	HD 4600	1.10 GHz	1333/1600
	4430	4	-	3.0 GHz	3.2 GHz	6 MB	84 W	HD 4600	1.10 GHz	1333/1600
Core i3	4370	2	Yes	3.8 GHz	-	4 MB	54 W	HD 4600	1.15 GHz	1333/1600
	4360T	2	Yes	3.2 GHz	-	4 MB	35 W	HD 4400	1.15 GHz	1333/1600
	4360	2	Yes	3.7 GHz	-	4 MB	54 W	HD 4600	1.15 GHz	1333/1600
	4350T	2	Yes	3.1 GHz	-	4 MB	35 W	HD 4600	1.15 GHz	1333/1600
	4350	2	Yes	3.6 GHz	-	4 MB	54 W	HD 4600	1.15 GHz	1333/1600
	4340	2	Yes	3.6 GHz	-	4 MB	54 W	HD 4600	1.15 GHz	1333/1600
	4330TE	2	Yes	2.4 GHz	-	4 MB	35 W	HD 4600	1.00 GHz	1333/1600
	4330T	2	Yes	3.0 GHz	-	4 MB	35 W	HD 4600	1.15 GHz	1333/1600
	4330	2	Yes	3.5 GHz	-	4 MB	54 W	HD 4600	1.15 GHz	1333/1600
	4160T	2	Yes	3.1 GHz	-	3 MB	35 W	HD 4400	1.15 GHz	1333/1600
	4160	2	Yes	3.6 GHz	-	3 MB	54 W	HD 4600	1.15 GHz	1333/1600
	4130T	2	Yes	2.9 GHz	-	3 MB	35 W	HD 4400	1.15 GHz	1333/1600
	4130	2	Yes	3.4 GHz	-	3 MB	54 W	HD 4400	1.15 GHz	1333/1600

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Name	Modell	Kerne	HT	Takt	Turbo	Cache	TDP	Grafik	GPU max.	DDR3
Pentium	G3460	2	-	3.5 GHz	-	3 MB	53 W	HD	1.10 GHz	1333/1666
	G3450T	2	-	2.9 GHz	-	3 MB	35 W	HD	1.10 GHz	1333/1666
	G3450	2	-	3.4 GHz	-	3 MB	53 W	HD	1.10 GHz	1333/1666
	G3440T	2	-	2.8 GHz	-	3 MB	35 W	HD	1.10 GHz	1333/1666
	G3440	2	-	3.3 GHz	-	3 MB	53 W	HD	1.10 GHz	1333/1666
	G3430	2	-	3.3 GHz	-	3 MB	53 W	HD	1.10 GHz	1333/1666
	G3420T	2	-	2.7 GHz	-	3 MB	35 W	HD	1.10 GHz	1333/1666
	G3420	2	-	3.2 GHz	-	3 MB	53 W	HD	1.15 GHz	1333/1666
	G3320TE	2	-	2.3 GHz	-	3 MB	35 W	HD	1.00 GHz	1333/1666
	G3250T	2	-	2.8 GHz	-	3 MB	35 W	HD	1.10 GHz	1333
	G3250	2	-	3.2 GHz	-	3 MB	53 W	HD	1.10 GHz	1333
	G3240T	2	-	2.7 GHz	-	3 MB	35 W	HD	1.10 GHz	1333
	G3240	2	-	3.1 GHz	-	3 MB	53 W	HD	1.10 GHz	1333
	G3220T	2	-	2.6 GHz	-	3 MB	35 W	HD	1.10 GHz	1333
	G3220	2	-	3.0 GHz	-	3 MB	53 W	HD	1.10 GHz	1333
Celeron	G1850	2		2.9 GHz	-	2 MB	53 W	HD	1.05 GHz	1333
	G1840T	2		2.5 GHz	-	2 MB	35 W	HD	1.05 GHz	1333
	G1840	2		2.8 GHz	-	2 MB	53 W	HD	1.05 GHz	1333
	G1830	2	-	2.8 GHz	-	2 MB	54 W	HD	1.05 GHz	1333
	G1820TE	2	-	2.2 GHz	-	2 MB	35 W	HD	1.00 GHz	1333
	G1820T	2	-	2.4 GHz	-	2 MB	35 W	HD	1.05 GHz	1333
	G1820	2	-	2.7 GHz	-	2 MB	54 W	HD	1.05 GHz	1333

K = unlocked, **S** = Performance optimized lifestyle, **T** = Power optimized lifestyle, **HT** = Hyper Threading (SMT).
Please refer to the support list for detailed processor support information at *global.shuttle.com*.

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